

The Children's Healthline

communicating today's environmental problems to protect our children's future



Asthma...

it takes their breath away



In the Academy Award winning movie “As Good as It Gets”, despondent mom (Helen Hunt) is seen frequently taking her sickly child to the emergency room. The viewer assumes that this poor child is suffering from cancer or AIDS. It comes as a surprise to many when it is later revealed that the child has asthma. The movie helps to depict the seriousness of and misunderstanding surrounding asthma. In the U.S., asthma is the No. 1 serious chronic disease of childhood, affecting nearly 5 million children. The incidence of this disorder has more than doubled since the 1970's while the reasons remain unclear.

More disturbing facts:

- Studies have found that nearly **1 in every 10** children in the U.S. has asthma. If your child doesn't have asthma, chances are that one of their friends may have it.
- Asthma **deaths are on the rise** in children and young people, **increasing a dramatic 118 % between 1980 and 1993**, according to the CDC. Asthma also accounts for one-sixth of all pediatric emergency room visits.
- The value of lost productivity from parents missing work to care for their asthmatic children **exceeds \$1 billion annually**.

The picture is even more startling in older cities. Recent studies and surveys indicate asthma rates are significantly higher than 1 in 10 children in Philadelphia and that 1 in 3 asthmatic children there ends up in a hospital emergency room each year. The estimated annual cost of treating asthma in the Delaware Valley is over \$160 million.

What is asthma?

Asthma is a disease of chronic inflammation affecting the airways that carry air into and out of the lungs. This inflammation is present regardless of the severity of the disease or the symptoms. It is believed that children develop asthma if they have a genetic predisposition to having overly sensitive bronchial tubes with overly reactive muscles. When genetically predisposed children are exposed to certain things (triggers) in their environment at certain critical times, the combination may result in an asthma attack.

Anyone can develop asthma. In children it is most likely to occur by age 5. Among adults, asthma is most often developed when they're in their 30s, though even senior citizens can develop asthma.

What are the symptoms?

Symptoms vary, but may include coughing, wheezing, shortness of breath or rapid breathing, chest tightness, and/or producing a lot of mucus. Parents may notice their child has less stamina during play than his or her peers, or they may notice the child trying to limit or avoid physical activities to prevent coughing or wheezing. Not diagnosing asthma is a frequent problem, especially in children who wheeze when they have respiratory infections. These children are often misdiagnosed as having bronchitis or pneumonia.

What are the environmental triggers?

What is known is that a variety of environmental triggers can set off asthma attacks. These triggers may vary from one child to the next. It has been found that vigorous exercise, exposure to colds and sudden temperature change, food allergies, excitement, stress, infections and colds may trigger attacks. However, the most common triggers are indoor and outdoor air pollutants.

Major outdoor triggers of asthma include:

- Motor vehicle and power plant emissions
- Particulate matter (dust, soot, smoke)

Currently, more than 25% of the nation's children live in areas that don't meet national air quality standards.

Major indoor triggers of asthma include:

- Environmental Tobacco Smoke (secondhand smoke)
- Irritants such as commercial products (paints, cleaning agents, pesticides, perfumes)
- Components of building structures (sealants, plastics, adhesives, insulation materials)
- Animal and insect allergens (such as dander, dust mites and cockroach allergen)

- Molds
- Nitrogen oxides (space heaters, gas stoves)

Up to 1 million asthmatic children have their condition worsened by exposure to secondhand smoke.

How can environmental triggers be controlled?

The most important first step is to realize that you, more than anyone has control over your child's indoor environment. The choices you make regarding products brought into your home, as well as, various household practices effect your asthmatic child. Reducing environmental triggers along with asthma medication therapy prescribed by your physician is the best way to control asthma.

TRIGGERS	PREVENTION MEASURES
Dust mite allergens	Wash bed linens and blankets once a week in hot water and dry in a hot dryer or in the sun. Encase pillows and mattresses in air-tight covers. Remove carpets, especially from your child's bedroom. Use a High Efficiency Particulate Air (HEPA) filtered vacuum and a damp mop to clean.
Tobacco smoke	Keep people from smoking in the home.
Animal dander	Keep animals, especially cats, out of the home or at least your child's bedroom. Use a HEPA vacuum and a damp mop.
Cockroach allergens	Keep foods in sealed containers. Clean the home thoroughly and often. Caulk around cracks and plumbing pipes and fixtures.
Pollens and Mold	Close windows and doors and keep children indoors when pollen and mold counts are high. Reduce dampness in the home; use a dehumidifier.
Chemicals in household products, furnishings and building materials	Read the labels before buying. Avoid those products containing volatile organic compounds (VOCs). Use nonaerosol, unscented cleaners and cosmetics.

Ask the Regional Expert

To help characterize the problems involved in combating asthma, we spoke with EPA's Region 3 Asthma Coordinator, Darice Ellis, of the Air Protection Division. When we asked her what is the most important step a parent can take to manage their child's asthma, she replied, "In addition to medications, ridding the child's environment of triggers is key. Actions can include: keeping pets out of the home, removing carpeting, using hypo-allergenic mattress and pillow covers, and frequently damp mopping and /or using a HEPA vacuum."

Regarding barriers that have to be overcome in raising awareness of asthma, Darice responded, "Better education of health care providers is essential. There is a great deal of frustration, particularly around the propensity of physicians to misdiagnose asthma as bronchitis and to treat it with antibiotics. Parents' inability to manage their children's asthma is also a barrier. Parents often don't obtain prescribed medications or ensure that their child follows their asthma management plan, and, in general, they may feel incapable of managing their child's illness. As a result, parents relinquish their control to emergency room physicians who may or may not recognize their child's symptoms as asthma. There is definitely a strong need to improve communications and education among various parties associated with managing asthma, including primary care providers (and their office staffs), specialists, hospitals and emergency room staff, school nurses and teachers, health insurance companies and last, but certainly not least, parents and children themselves."

For additional information on:

Asthma:

National Institutes of Health (NIH): www.niaid.nih.gov/publications/asthma.htm

American Academy of Allergy, Asthma and Immunology: www.aaaai.org

Asthma and Allergy Foundation of America: www.aafa.org/

EPA Regional Asthma Coordinator: Darice Ellis, ellis.darice@epa.gov (215) 814-2024

Indoor Air Pollution:

Environmental Protection Agency (EPA): www.epa.gov/iaq/homes.html

Also refer to Volume 1 of the *Children's Healthline* on "Indoor Air Problems from Heating and Ventilation" and Volume 6 on "Ozone".

Alternative Products:

<http://es.epa.gov/techinfo/facts/safe-fs.html>

<http://es.epa.gov/new/contacts/newsletters/shopping.html>

EPA Region III's Children Health Program:

Gail Tindal at (215) 814-2069 or tindal.gail@epa.gov

Dan Welker at (215) 814-2744 or welker.dan@epa.gov